

REMARKS

This application has been carefully reviewed in light of the Office Action dated October 17, 2005. Claims 1 to 30 are in the application, of which claims 1, 11 and 21 are the independent claims. Claim 11 has been amended herein. Reconsideration and further examination are respectfully requested.

In the Office Action, claims 9, 18 and 24 were objected to for alleged informalities. Specifically, the Office Action alleged that it "was unclear as to how an empty list does not maintain unused instances but a non-empty list maintains unused instances." In response, Applicants respectfully direct the Examiner to the paragraph beginning on line 28 of page 16 of the specification, in which node 1402 is described as representing "a frame that is empty of *available* instances, i.e., all instances of the frame are being used by the application." In this regard, Applicants maintain that, consistent with this passage in the original disclosure, the use of the terms "empty list" or "empty subset" in the objected-to claims refers to nodes that are empty of *available* instances, not nodes which are themselves empty. Similarly, as described throughout the disclosure including the paragraph beginning on line 16 of page 17 of the specification, the terms "non-empty list" or "not_empty subset" refer to nodes or frames that are not empty of *available* instances, and not nodes which are themselves not empty. Having further clarified these terms in light of the original disclosure, Applicants respectfully request reconsideration and withdrawal of the objection to claims 9, 18, and 24.

Claim 11, which was objected to for a different alleged informality, has been amended in accordance with the Examiner's suggestion. Applicants thank the Examiner for identifying this informality. Accordingly, reconsideration and withdrawal of this rejection are requested.

Claims 1 to 3, 10 to 13, 21, and 27 to 30 were rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,784,699 ("McMahon"); and claims 4 to 9, 14 to 20, and 22 to 26 were rejected under 35 U.S.C. § 103(a) over McMahon in view of U.S. Patent No. 5,930,827 ("Sturges"). Reconsideration and withdrawal of the rejections are respectfully requested.

Referring to particular claim language, independent claim 1 recites a frame handler for application-level memory management, the frame handler including an associated block of memory divided into instances such that data elements may be stored in the instances and a data structure identifying the unused instances within the block of memory. The frame handler also includes an application interface operable to receive a request for an unused instance from a software application, where the frame handler is operable to identify an unused instance in response to a request received by the application interface.

The applied art is not seen to disclose, teach or suggest the features recited in claim 1. In particular, McMahon is not seen to disclose at least the feature of a data structure identifying the unused instances within the block of memory.

In more detail, McMahon describes a computer system which implements a memory allocator that employs a data structure to maintain an inventory of dynamically allocated memory available to receive new data. *See McMahon*, col. 4, ln. 58 to col. 5, ln. 8; and Abstract. On page 4, the Office Action asserts that column 5, lines 30 to 31 of McMahon disclose an associated block of memory divided into instances such that data elements may be stored in the instances, and a data structure identifying the unused instances within the block of memory. Applicants respectfully disagree. Specifically, the cited portion of McMahon describes the operation of a dynamic memory operator which, in response to a request for memory, searches for a free memory block from a free list, where the free list identifies memory blocks not currently in use in the computer. *See McMahon*, col. 3, ll. 1 to 4 and 28 to 31. Although the free list is seen to identify those portions of memory which are unused by the computer and which are allocated to a memory block, nothing in the cited passage is seen to identify unused instances *within the memory block itself*.

Accordingly, McMahon does not disclose at least the feature of a data structure identifying the unused instances within the block of memory, as recited in independent claim 1.

Referring to particular claim language, independent claim 11 recites a method for allocating memory in a computer system. The method includes outputting a request from an application to an operating system for allocation of a block of memory by the operating system

to the application, accessing the block of memory for the application, and dividing the block of memory into frames. The method further includes dividing each of the frames into instances, with each instance operable to store data and associated with an application-defined instance type, and maintaining a data structure indicating each unused instance.

The applied art is not seen to disclose, teach or suggest the features recited in claim 11. In particular, McMahon is not seen to disclose at least the feature of dividing each of the frames into instances, with each instance operable to store data and associated with an application-defined instance type, and maintaining a data structure indicating each unused instance.

Applicants respectfully disagree with the assertion of the Office Action that column 5, lines 50 to 59 of McMahon describe the feature of dividing each of the frames into instances, with each instance operable to store data and associated with an application-defined instance type. Specifically, although the cited portion of McMahon generally describes the division of memory blocks, nowhere is McMahon seen to describe these divided memory blocks as frames, nor is McMahon seen to divide each of the frames into instances, with each instance associated with an application-defined instance type. Moreover, Applicants note that the italicized arguments presented on the top of page 6 of the Office Action are unsupported by specific citation to any reference, and respectfully direct the Examiner's attention to MPEP § 706 and 37 C.F.R. § 104, which require that "the particular part [of a reference] relied on must be designated as nearly as practicable." *See* 37 C.F.R. § 104(c)(2). When such prior art is cited with particularity, the pertinence of the particular part should then be explained. *See* MPEP § 707.05. In the absence of such a citation, the § 102(b) rejection should be withdrawn.

Furthermore, the Office Action asserts that column 6, lines 21 to 25 of McMahon describes the feature of maintaining a data structure indicating each unused instance. This cited passage, however, merely describes the existence of a free list. As discussed above, with reference to independent claim 1, the free list is seen to identify those portions of memory which are unused by the computer and which are allocated to a memory block, and is not seen to identify unused instances within the memory block itself.

Accordingly, McMahon does not disclose at least the features of dividing each of the frames into instances, with each instance operable to store data and associated with an application-defined instance type, and maintaining a data structure indicating each unused instance, as recited in claim 11.

Referring to particular claim language, independent claim 21 recites a method, including assigning a first identifier that is associated with a first memory portion to a first node, linking a first list of instances to the first node, the first list of instances corresponding to divisions of the first memory portion, and assigning a second identifier that is associated with a second memory portion to a second node. The method also includes linking a second list of instances to the second node, the second list of instances corresponding to divisions of the second memory portion, constructing a data structure using a plurality of nodes including the first node and the second node, and selecting available instances from the instances for data storage by an application, where the instances are associated with an application-determined instance type.

The applied art is not seen to disclose, teach or suggest the features recited in claim 21. In particular, McMahon is not seen to disclose at least the feature of selecting available instances from the instances for data storage by an application, where the instances are associated with an application-determined instance type.

On page 7, the Office Action asserts that column 5, lines 25 to 39 of McMahon discloses selecting available instances from the instances for data storage by an application, where the instances are associated with an application-determined instance type. Again, Applicants respectfully disagree. Specifically, and as discussed above with regard to claim 1, the cited portion of McMahon is seen to describe the operation of a dynamic memory operator which, in response to a request for memory, searches for a free memory block from a free list, where the free list identifies memory blocks not currently in use in the computer. *See* McMahon, col. 3, ll. 1 to 4 and 28 to 31. Accordingly, this passage is seen to describe the selection of available memory blocks, not instances, and nothing in this cited passage is seen to describe the association of these instances with an application-determined instance type.

Accordingly, McMahon does not disclose at least the feature of selecting available instances from the instances for data storage by an application, where the instances are associated with an application-determined instance type, as recited in independent claim 21.

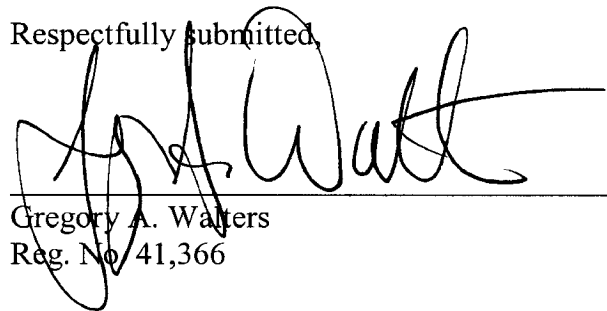
Based on the foregoing amendments and remarks, independent Claims 1, 11, and 21 are believed to be allowable over the applied reference. The other rejected claims in the application are each dependent from the independent claims and are believed to be allowable over the applied reference for at least the same reasons. Because each dependent claim is deemed to define additional aspects of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

The fee in the amount of \$120 for the one month extension of time fee (\$120) is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to Deposit Account No. 06-1050.

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Respectfully submitted,



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